**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Earthquake Inquiry Questions**

**Use the internet to research and find the answers to the questions below. Make sure to use creditable websites (e.g. domain names with extensions such as .edu, .gov, .us, .org, etc.) and cite them with answers. You can find a wealth of creditable resources on Mr, Smith’s website. Keep in mind the questions are designed to help you create your notes. When you are reading, please read carefully to maximize your comprehension. Make sure your answers are well developed so that you capture the full essence of each concept.**

1. Why do most earthquakes occur along plate boundaries?
2. Geographically speaking, where are the fewest earthquakes experienced?
3. Explain the cause of rock deformation and its relationship to yield strength.
4. Compare and contrast stress and strain as related to rock deformation.
5. Why do rocks become ductile and what four factors determine if a rock is elastic or not?
6. What is elastic-ductile transition and how does it relate to earthquakes?
7. Draw and explain the three types of stress that act on Earth’s rocks.
8. Draw the three types of faults and describe their characteristics?
9. Why do most deep earthquakes occur at subduction zones?
10. Compare and contrast focus (hypocenter) and epicenter.
11. What is the Wadati-Benioff zone?
12. What are waves and their characteristics? (Hint: discuss the relationship between frequency, wavelength, and amplitude)
13. How do seismic waves radiate outward from their point of origin?
14. How does the depth of the focus affect the speed of seismic waves?
15. Describe the characteristics of P, S, L (Love, Long) and Rayleigh waves. Illustrate their motion.
16. Why do P wave shadow zones and S wave shadow zones occur? Draw an illustration.
17. What happens to seismic waves as they travel from a denser medium (such as solid) to a less dense medium (such as a liquid)? (Hint: refraction)
18. How is the amplitude of a seismic wave effected as it travels from rock to unconsolidated sediments such as soil? How does this affect the energy of the wave?
19. How were seismologists able to determine that Earth’s outer core is a liquid?
20. Why do aftershocks occur?
21. Explain how the magnitude of an earthquake is measured.
22. How can an earthquake’s epicenter be determined?
23. How is the intensity of an earthquake determined?
24. How could a high magnitude earthquake cause minimal damage even though it occurs close to the epicenter?
25. Describe the equipment used to detect earthquake motions and determine earthquake magnitude. Are earthquakes monitored in your area? If so, where is the nearest seismograph station located relative to your location?
26. Explain how the  [Richter Scale and Mercalli Scale](http://www.seis.utah.edu/qfacts/genfaq.shtml#gq8) are used.
27. What is the energy and amplitude difference of an earthquake with a magnitude 5 compared to one with a magnitude 7?
28. Describe six hazards associated with earthquakes.
29. How do earthquakes affect the lives of people who live in earthquake zones?
30. How can people better prepare for earthquakes?